UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,468	01/19/2006	Qingliang Liu	80170-1010	8096

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EXAMINER
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2416	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/565,468	LIU ET AL.
	Examiner	Art Unit	
	MAXWELL A. CLARK	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>19 January 2006</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-9</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-9</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>4/06</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Specification

1.   Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2.   A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter.

3.   The disclosure is objected to because of the following informalities: Page 5, line 13, "Fig. 4" should be changed to "Table 4."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5.   Claims 6 and 9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 6, the limitation "rebuilding data," see line 7, is not properly described in the application as filed in order to identify to one of ordinary skill in the art the scope of the claimed subject matter.

Regarding claim 9, the limitation "according to voice call condition," see line 4, is not properly described in the application as filed in order to identify to one of ordinary skill in the art the scope of the claimed subject matter.

6.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7.   Claims 5 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 5, the phrase "to realize correct demultiplexing and multiplexing" in claim 5 renders the claim indefinite. The phrase "correct demultiplexing and

multiplexing" is not defined by the claim, the specification does not provide a standard

for ascertaining the requisite degree, and one of ordinary skill in the art would not be

reasonably apprised of the scope of the invention. Therefore, the peer networking to

realize correct demultiplexing and multiplexing of different services has been rendered

indefinite by the use of the phrase "to realize correct demultiplexing and multiplexing".

Claim 9 recites the limitation "according to call condition" in line 4. There is

insufficient antecedent basis for this limitation in the claim. Moreover, "thereby," in line

7, renders the claim indefinite for failing to particularly point out and distinctly claim the

subject matter. The subject matter of a properly construed claim is defined by the terms

that limit its scope. It is this subject matter that must be examined. As a general matter,

the grammar and intended meaning of terms used in a claim will dictate whether the

language limits the claim scope. Language that suggests or makes optional, such as

"thereby," but does not require steps to be performed or does not limit a claim to a

particular structure does not limit the scope of a claim or claim limitation. Therefore,

"thereby" renders the claim indefinite because it is unclear whether the limitations

following the phrase are part of the claimed invention.

Claim Rejections - 35 USC § 102

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Dufour et al. (US 2003/0123472 A1).

Regarding claim 1, Dufour discloses realizing dynamic adjustment of data bandwidth in transmission equipment (title, dynamic allocation of bandwidth in a TDM network; ¶0027, dynamic bandwidth allocation apparatus and method), comprising adding a control channel in a trunk link of the transmission equipment (¶0005, Time Division Multiplexing (TDM) protocols such as SONET/SDH are used in optical fiber networks to transport data across the network. The SONET protocol enables data to be aggregated from several tributaries; ¶0012, The TDM frame is a SONET frame) for describing occupancy on time slots by a current service (¶0015, a designated code generator is configured for generating and inserting into each unallocated time slot a designated code to identify that the time slot contains no payload data).

Regarding claim 2, Dufour discloses realizing dynamic adjustment of data bandwidth in transmission equipment of claim 1 (title, dynamic allocation of bandwidth in a TDM network; ¶0027, dynamic bandwidth allocation apparatus and method), wherein the control channel implements dynamic distribution on time slots in PCM line (¶0012, The TDM frame for the illustrated preferred embodiment is a SONET frame and bandwidth of the tributary is increased when the new set(s) of time slots are allocated) under control of CPU (¶0036 - ¶0037, the system is implemented processing functions, individual electronics and software utilities).

Regarding claim 3, Dufour discloses realizing dynamic adjustment of data bandwidth in transmission equipment of claim 2 (title, dynamic allocation of bandwidth in a TDM network; ¶0027, dynamic bandwidth allocation apparatus and method), wherein the dynamic distribution on time slots is controlled by channel control words written in the control channel, and the control channel comprises one or more time slots (¶0007, encapsulation schemes provide control codes for delineating the start and end of frames; ¶0016, encoding produces data units comprising 9 bits consisting of an 8 bit information octet, being a control octet).

Regarding claim 4, Dufour discloses realizing dynamic adjustment of data bandwidth in transmission equipment of claim 1 (title, dynamic allocation of bandwidth in a TDM network; ¶0027, dynamic bandwidth allocation apparatus and method), wherein the current service comprises voice service and data service (¶0011, the data tributary, i.e. voice service, comprising data units, during transport of the data tributary over a communications link by a time division multiplexing (TDM) frame).

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10.   The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dufour et al. (US 2003/0123472 A1) in view of Roberts et al. (US 2003/0198189 A1).

Regarding claim 5, Dufour discloses realizing dynamic adjustment of data bandwidth in transmission equipment of claim 1 (title, dynamic allocation of bandwidth in a TDM network; ¶0027, dynamic bandwidth allocation apparatus and method), wherein the method is applied in peer networking (¶0005, Time Division Multiplexing (TDM) protocols such as SONET/SDH are used in optical fiber networks to transport data across the network; ¶0013, tributaries are encoded using the HDLC protocol) to realize multiplexing of different services (¶0005, Time Division Multiplexing (TDM) protocols such as SONET/SDH are used in optical fiber networks to transport data across the network; ¶0006, an aggregator aggregates (i.e., combines) the client STS-1's into a composite STS payload (e.g., STS-48 or STS-192) and the aggregate data stream is fed into a SONET transmit framer to insert section/line/path overhead information (data) and create a proper SONET frame). Dufour does not expressly disclose correct demultiplexing. However, Robert discloses Having received a packet from the support framework software, the Virtual-Service-Modules 422-450 can assume, when appropriate, that the addressing information is correct and that the packet has been correctly demultiplexed, see in particular paragraph 0047, to ensure proper demultiplexing. It would have been obvious to one of ordinary skill in the art at the time

of the instant application to include the teachings of Robert in Dufour to ensure proper

demultiplexing so that the data in the packet is undamaged when recombined, see in

particular paragraph 0047.

Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Dufour et al. (US 2003/0123472 A1) in view of Owens et al. (US 2003/0039244 A1).

Regarding claim 6, Dufour discloses a device for realizing dynamic adjustment of

data bandwidth in transmission equipment (title, dynamic allocation of bandwidth in a

TDM network; ¶0027, dynamic bandwidth allocation apparatus and method), comprising

a control word process circuit (¶0007, encapsulation schemes provide control codes for

delineating the start and end of frames; ¶0016, encoding produces data units

comprising 9 bits consisting of an 8 bit information octet, being a control octet; ¶0036 -

¶0037, the system is implemented by processing functions, individual electronics and

software utilities), a time slot distribution circuit (¶0029, a data unit inserts data units into

the new set(s) of time slots being allocated; ¶0036 - ¶0037, the system is implemented

by processing functions, individual electronics and software utilities) and a CPU

interface circuit (¶0036 - ¶0037, the system is implemented by processing functions,

individual electronics and software utilities), wherein the control word process circuit is

designed to complete abstraction and insertion of control information in control channel

(¶0032 - ¶0033, data is inserted to and removed from the allocated and de-allocated

time slots. For encoding, eight characters and the ninth octet comprises the input octet

type bit for each of those eight values to identify them as control or data values as

shown by FIG. 5. FIG. 6), the CPU interface circuit implements controlling on time slot

distribution (¶0011, set(s) of time slots to be allocated to the tributary are determined;

¶0036 - ¶0037, the system is implemented processing functions, individual electronics

and software utilities). Dufour does not expressly disclose separating voice from

Ethernet data. However, Owens discloses the DSLAM which is a device for DSL

service that separates incoming phone and data signals for the purpose of directs them

onto the appropriate network, see in particular paragraph 0043. It would have been

obvious to one of ordinary skill in the art at the time of the instant application to

incorporate the teachings of Owens into Dufour for to enable proper network direction of

the voice and data, see in particular paragraph 0043.

Regarding claim 8, Dufour discloses the device for realizing dynamic adjustment

of data bandwidth in transmission equipment of claim 6 (title, dynamic allocation of

bandwidth in a TDM network; ¶0027, dynamic bandwidth allocation apparatus and

method), wherein the time slot dynamic distribution circuit is controlled by channel

control words written in a control channel (¶0007, encapsulation schemes provide

control codes for delineating the start and end of frames; ¶0016, encoding produces

data units comprising 9 bits consisting of an 8 bit information octet, being a control

octet), and the control channel comprises one or more time slots (¶0016, 8 data units

are mapped to eight of a sequence of nine contiguous timeslots of each the new STS-

1).

Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dufour

et al. (US 2003/0123472 A1) in view of Owens et al. (US 2003/0039244 A1) as applied

to claim 6 above, and further in view of Bare (US 2003/0179707 A1).

Regarding claim 7, Dufour discloses the device for realizing dynamic adjustment of data bandwidth in transmission equipment of claim 6 (title, dynamic allocation of bandwidth in a TDM network; ¶0027, dynamic bandwidth allocation apparatus and method), wherein the device further comprises High Level Data Link Control (HDLC) (¶0018, FIGS. 1(a) and (b) illustrate a HDLC protocol frame (per FIG. 1(a)) for processing by a mapper and aggregator to multiplex the data), checking frame integrity (¶0025, a frame check sequence (FCS) field (i.e. Cyclical Redundancy Check (CRC)) defaults to 16 bits (two octets) and is calculated over all bits of the address, control, control frame type and data fields). Dufour and Owens do not expressly disclose checking integrity of MAC frame, comparing and learning MAC addresses. However, Bare discloses MAC addresses learned from a given edge switch so that the MAC addresses can be safely distributed, see paragraph 0276. It would have been obvious to one of ordinary skill in the art at the time of the instant application to include the teachings of Bare in Dufour and Owens in order to determine the best path in the network, see paragraph 0276.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dufour et al. (US 2003/0123472 A1) in view of Buckingham et al. (US 6,657,970 B1).

Regarding claim 9, Dufour discloses realizing dynamic adjustment of data bandwidth in transmission equipment (title, dynamic allocation of bandwidth in a TDM network; ¶0027, dynamic bandwidth allocation apparatus and method), comprising informing a time slot distribution circuit by CPU (¶0036 - ¶0037, the system is implemented processing functions, individual electronics and software utilities) of time

slots to be occupied by a voice service according to voice call condition when a current service is multiplexed (¶0011, data tributary comprising data units which transport data tributary over a communications link by a time division multiplexing (TDM) frame from a source device to a sink device), releasing the time slots from data service by the time slot distribution circuit; and distributing to the voice service (¶0015, inserting the data units into the new set(s) of time slots allocated to the tributary, if the new set(s) of time slots are being allocated to the tributary, and for discontinuing insertion of the data units into the new set(s) of time slots de-allocated to the tributary, if the new set(s) of time slots are being de-allocated to the tributary, wherein the inserting or discontinuing insertion of data units into the new set(s) of time slots is commenced upon the confirmation receipt), informing the time slot distribution circuit by CPU (¶0036 - ¶0037, the system is implemented processing functions, individual electronics and software utilities; ¶0030, On receipt of the message identifying that the STSs are to be de-allocated, the sink device no longer regards these STS-1s as being part of the tributary and the data unit inserter discontinues inserting data units into the new set(s) of time slots being de-allocated to the tributary (i.e., STSs 5 and 9) and the ingress side may use the de-allocated STS-1s (5 and 9) for other purposes (i.e., they now become unallocated)), and distributing the time slots to Ethernet data service by the time slot distribution circuit, thereby to implement dynamic adjustment of Ethernet data service (timeslot allocation and bandwidth allocation of FIGS. 4(a) and (b) illustrate a specific example of bandwidth re-allocation whereby the bandwidth of a tributary is increased from consisting of STS-1 numbers 1, 3 and 7 in a SONET STS-N frame to also include

STS-1 numbers 5 and 9. FIG. 4(a) shows the steps performed by the apparatus to increase bandwidth by two STS-1s (nos. 5 and 9) and FIG. 4(b) shows the steps performed by the apparatus to decrease bandwidth by two STS-1s (nos. 5 and 9)). Dufour does not expressly disclose the time slot having been released by the voice service after voice call finishes. Dufour does disclose on receipt of the message identifying that the STSs are to be de-allocated, the sink device no longer regards these STS-1s as being part of the tributary and the data unit inserter discontinues inserting data units into the new set(s) of time slots being de-allocated to the tributary (i.e., STSs 5 and 9) and the ingress side may use the de-allocated STS-1s (5 and 9) for other purposes (i.e., they now become unallocated), ¶0030, which balances data and voice. Buckingham expressly discloses each voice port is dynamically coupled to one of the PCM bus time slots by programming the cross -connect device when it detects the off-hook signal from a voice port, col.7, lines 1-6. It would have been obvious to one of ordinary skill in the art at the time of the instant application to include that of Buckingham in Dufour so that upon completion of a voice call, the PCM time-slot is freed for the next call, wherein the next call may come from a different voice port, col.7, lines 1-6.

Conclusion

11.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wenk; Richard D. (US 5625629 A1), Mazur; Sara et al. (US 6438115 B1), Gonda, Rumi Sheryar (US 20030067928 A1), Anderson, Sr.; Ronald D. (US 7190676 B2), Yu; Shaohua (US 7031341 B2).

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to MAXWELL A. CLARK whose telephone number is (571)

270-1956. The examiner can normally be reached on Monday to Thursday 7:30A.M.

through 5:00P.M. Eastern Standard Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Yao B. Kwang can be reached on (571) 272-3182. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

November 20, 2008

/Maxwell A. Clark/
Examiner, Art Unit 2416

/Kwang B. Yao/
Supervisory Patent Examiner, Art Unit 2416